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Self-Contained Validation of Data Model Object Content

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to computer programming, and deals more particularly with improved techniques for validating data.

Description of the Related Art

Use of computers in today's society has become pervasive. Many software applications accept input data and perform some type of validation on that data. When the input data is to be received from a human user, a graphical user interface ("GUI") is often used for soliciting that data from the user. Typically, the data is validated after entry by the user, and if the validation

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detects some type of error condition, an error message can be presented to the user. The data can be re-solicited until an acceptable value is obtained (or, in some cases, the data entry process is terminated without obtaining an acceptable value, such as when the user fails to provide a valid password after several attempts).

5   Practitioners of the software programming art have long been familiar with the means by which validation is logically linked to a data entry facility or widget. As one example of this linking, a software program might contain hard-coded logic for displaying a data entry field and then validating input received from that field, such as determining whether the received input has an appropriate length and uses acceptable characters. In the case of a social security number, for

10   example, the validation may comprise ensuring that exactly 9 digits have been provided. In object-oriented programming, the logical linking may comprise associating a property with an entry field GUI widget, where the property describes rules such as the data length and character set.

         While prior art data validation approaches may be functionally sufficient, there is room for

15   improvement.

SUMMARY OF THE INVENTION

An object of the present invention is to provide improved data validation techniques.

It is another object of the present invention to provide improved data validation by

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coupling validation of data to the data model (or data structure) itself.

Another object of the present invention is to provide this coupling for data and data models which are expressed in structured markup language notation.

Other objects and advantages of the present invention will be set forth in part in the description and in the drawings which follow and, in part, will be obvious from the description or may be learned by practice of the invention.

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To achieve the foregoing objects, and in accordance with the purpose of the invention as broadly described herein, the present invention provides methods, systems, and computer program products for improving data validation. In one aspect, this technique comprises defining one or more validation criteria and encapsulating the defined validation criteria with a data model to which they apply. The technique may also comprise using the defined validation criteria to validate a data value for the data model. The data model and/or the validation criteria may be expressed in a markup language notation, such as the XML ("Extensible Markup Language) notation.

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The present invention will now be described with reference to the following drawings, in which like reference numbers denote the same element throughout.

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